APPENDIX H

FISH AND WILDLIFE REPORT

Fish &Wildlife Report
Biological Evaluation
and
Aquatic Conservation Strategy
Final Evaluation
Nicore Environmental Impact Statement

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Fish

Distribution

Rough and Ready Creek is a tributary of the West Fork of the Illinois River. Salmonids known to occur include: Resident Rainbow Trout, Resident Cuttrout Trout, Klamath Mountains Province Steelhead Trout (ESU), Southern Oregon and California Coastal Chinook Salmon (ESU) and Southern Oregon / Northern California Coho Salmon (ESU).

Coho Salmon

Both the USFS and ODFW have survey records, which document the presence of the Southern Oregon / Northern California Coho Salmon (ESU) in Rough and Ready Creek during either the adult or juvenile stages of the life cycle. Juvenile Coho Salmon are known to utilize Rough and Ready Creek habitats (side channels and main channel deep-pools) in the vicinity of Seats Dam (Mayer/USFS 1998). Both the aquatic habitats and Riparian zones (300 horizontal feet from normal high water line) of all streams and estuaries that can still be occupied by any life stage of Coho Salmon was recently classified as *Critical Habitat* for Coho Salmon by the National Marine Fisheries Service (62 FR 62741). Notwithstanding, the recent Southwest Oregon Salmon Restoration Initiative (RVCOG 1997) does not recognize Rough and Ready Creek as a High Value Native Coho Habitat Area.

Fall-Run Chinook Salmon

Fall-run Southern Oregon and California Coastal Chinook Salmon (ESU) is known to both spawn and rear within Rough and Ready Creek. Habitat on the West Fork of the Illinois River, immediately adjacent to Rough and Ready Creek, is presently classified by ODFW as High value Native Fall Chinook Salmon Habitat.

Winter-Run Steelhead Trout

Winter-run Klamath Mountains Province Steelhead Trout spawn and rear throughout most of Rough and Ready Creek and many of the tributaries. Recent ocular reconnaissance identified low to moderate concentrations of juveniles at the proposed creek crossing sites and throughout the lower reaches of the creek within the planning area.

Resident Cutthroat Trout

Resident Cuttrout Trout occur throughout Rough and Ready Creek and many of the tributaries. Upper reaches of both the North Fork and South Fork of Rough and Ready Creek are likely more significant spawning and rearing sites than the main stem of the creek.

Resident Rainbow Trout

Resident Rainbow Trout also likely occur throughout Rough and Ready Creek and the tributaries

Land and Resource Management Plan - Management Goals

Standards and Guidelines

MA11-3

1. Spawning Habitat

Chinook salmon, Coho salmon and . Spawning HabitatSteelhead trout all likely spawn within the area of the proposed Rough and Ready Creek road crossings. Chinook salmon spawning immediately adjacent to and down stream of the proposed crossing sites may have increased stream-bed intra-gravel fines covering nests. At a site-specific level, intragravel fines could potentially be increased greater than 20 percent above background prior or just after fall spawning. Coho Salmon and Steelhead trout, spawning later in the season, are not likely to be impacted, in that micro site levels adjacent to the crossings may not be expected to exceed background levels by more than 20 percent. The Proposed Action, based on the number and type of crossings, presents the greatest potential to increase intragravel fines during chinook salmon spawning period. Other Action Alternatives, which either propose a reduced number of crossings and/or alternate types of crossings (i.e., bridge) are likely to elevate background levels to a lesser extent during fall spawning.

2. Rearing Habitat

. Rearing HabitatSteelhead trout are known to rear within the area of proposed Rough and Ready stream crossings. Recent (1998) observations indicate that riffle sites, within the area of the major crossings, rear greater numbers of 0.0 juvenile steelhead than adjacent pool habitats. Presumably this is because elevated oxygen levels occur in these riffle habitats and reduced oxygen levels occur in the adjacent pool habitats during periods of high water temperature.

a) Under all action alternatives overall stream temperature is likely to be maintained throughout the project area. However, some micro-sites may be cooled by major crossing structures such as bridges and culverts. Moreover, water pooled behind crossing structures may be associated with increased temperature and/or decreased dissolved oxygen. In addition, management of canopy cover is not proposed in this project. However, the risk of reductions in canopy cover from introduction of POC root disease is increased with all action alternatives. Stream temperatures may be increased at particular micro-sites due to canopy reduction from disease, however, the main-stem stream temperature would not likely be increased.

b) Rearing capacity, relative to riffle habitat, would likely be diminished in all action alternatives except Alternative 9 (rearing capacity would be maintained in the No Action alternative), therefore the Proposed Action and Action Alternatives 6-8 and 10-11 would not meet this S&G. Action Alternative Crossing structures including culverts and fords on the main-stem Rough and Ready Creek, and the lower reaches of tributaries such as No Name and Alberg Creeks, may reduce the total surface area of steelhead rearing habitat during low flow conditions. The Proposed Action would have the greatest risk of affecting rearing capacity due to the high number of crossings and proposed design of the crossings. Action alternatives that use bridges for all major crossings, reduced overall number of crossings, and would avoid using the Alberg Route, would minimize adverse effects and best meet this S&G. The fewer the number of major crossings the better for rearing capacity.

c) The existing amount of large woody material would not be directly reduced as a result of any action alternative. However any overall increased risk of introduction of POC root disease may degrade future large woody material recruitment.

3. Migration Habitat

Some seasonal fish passage barriers presently exist on Rough and Ready Creek (i.e., water diversions). The Proposed Action would reduce juvenile and adult passage in the vicinity of the crossings during the low flow period of the year. It is not known how much, if any, adult salmonid passage currently occurs during the low flow conditions. Moreover, it is not known to what extent existing structures prevent adult passage during low flow conditions. During the summer of 1998 observation of the numbers of juvenile steelhead in the main channel Rough and Ready Creek were conducted. Observations in the vicinity of the proposed crossings indicate that there may be a strong correlation with the distance up-channel and the numbers of juveniles observed (more fish were observed between proposed crossings #5 and #6 than between any other main-stem crossings). The Proposed Action clearly does not meet this Standard and Guideline (S&G). The fewer the number of major crossings the better the alternative regarding this S&G. Action alternatives that use bridges (Alts 6-11 not 9) better meet this S&G. The No Action Alternative and then Alternative 9 best meet this S&G.

1. Checklist Documenting Environmental Baseline and Effects of Action Alternatives on Relevant Indicators

Factors Indicators	Lower Rough and Ready Creek Reach Response Reach			Effects of the Action Alternatives Or No Action		
	Optimum Range	Marginal	Outside Optimum Range	Restore	Maintain	Degrade
Water Quality Temperature			X		6, 7, 8, 9 10, 11, NA	PA
Habitat Access Physical Barriers		X			6, 7, 8, 9 10, 11, NA	PA
Habitat Elements						
Sediment	X				NA, 9	PA, 6, 7, 8, 10, 11
Large Wood		X			PA, 6, 7, 8, 9, 10, 11, NA	
Pool Character and Quality		X			PA, 6, 9, 11, NA	7, 8, 10
Off-channel Habitat		X			NA, 9, 6, 7, 8, 10, 11	PA
Channel Conditions and Dynamics						
Width/depth ratios		X			PA, 6, 7, 8, 9, 10, 11, NA	
Stream-bank Condition		X			NA, 9, 11	PA, 6, 7, 8, 10
Floodplain Connectivity		X			6, 7, 8, 9, 10, 11, NA	PA
Flow/Hydrology Changes in peak flows	X				PA, 6, 7, 8, 9, 10, 11, NA	
Watershed Conditions						
Road Density and Location		X			NA, 9	PA, 6, 7, 8, 10, 11
Human Disturbance History		X			NA	PA, 6, 7, 8, 9, 10, 11
Riparian Reserves		X			NA, 9	PA, 6, 7, 8, 10, 11
Landslide and Erosion Rates		X			NA, 9	PA, 6, 7, 8, 10, 11
Harassment or Incidental Take		X			NA, 9	PA, 6, 7, 8, 10, 11

1. Selection of Optimum, Marginal, and Outside Optimum Range Environmental Baseline conditions are derived from Forest Service, BLM and ODFW stream survey data and synthesis of watershed analysis findings. These Ranges have been established in general terms for Southwest Oregon (Frick 1993) and conform to NMFS ESA determination standards. However, natural productivity of serpentine geology is recognized as producing much less than optimum conditions relative to many key indicators such as water temperature and large wood.

2. These three categories of function (Optimum Range, Marginal, and Outside Optimum Range) are defined for each indicator in the "Matrix of Factors and Indicators" (addendum)

3. For the purposes of this checklist (Table), "restore" means to change the function of an "Marginal" indicator to "Optimum Range" or to change the function of a "Outside Optimum Range" indicator to "Marginal" or "Optimum Range", moving conditions towards recovery. For the purposes of this checklist (Table), "degrade" means to change the function of an indicator for the worse. In some cases, a "Outside Optimum Range" indicator may be further worsened.

Discussion of Relevant Indicators

Temperature

- None of the Action Alternatives including the Proposed Action can be expected to result in any measurable overall water temperature changes within the response reach. However, some micro-site-specific changes may likely occur in the immediate vicinity of main channel stream crossings. Crossing structures, such as bridges, may, to some extent, reduce water temperatures at these micro-sites.

Physical Barriers

The Proposed Action can be expected to further reduce both adult and/or juvenile steelhead trout passage during seasonal low flow conditions. Alternatives 6, 7, 8, and 10 propose to reduce the number of fish bearing stream crossings and use bridges. No action and Alternative 9 have no stream crossings and thus would best maintain fish passage.

Sediment Regime

- All Action Alternatives, including the Proposed Action increase the risk of fine sediment reaching the main channel of Rough and Ready Creek. In general, the number proposed crossings and the nature of the crossings reflects the relative risk of fine sediment delivery. Thus, the Action Alternative with the least number of channel crossings may be expected to present the least risk of fine sediment delivery. Any excessive amount of fine sediment delivery may be expected to reduce overall carrying capacity, relative to both summer rearing and fall spawning, in the immediate vicinity of the proposed major vehicle stream crossings (see physical science report for a detailed comparison of action alternatives relative to estimated sediment delivery).

Large Wood

- Port-Orford-cedar is potentially the most significant contributor of large wood in the *Riparian Reserve* within the planning area. Both Alberg Creek and No Name Creek have sgnificant

populations of Port Orford cedar within these respective Riparian Reserves. Action Alternatives, including the Proposed Action, that use roads, likely increase the risk of spread of Port-Orford-cedar root disease into the planning area. At present, the Port-Orford-cedar root disease has not been documented to occur within Rough and Ready Creek Watershed. Any increased risks of the spread the root disease may in turn constitute a increased risk for future in-stream large woody material within the above identified tributaries. No Action and Alternative 9 maintain the current risk (see POC report for more specific information).

Pool Character and Quality

Main channel pool character and quality within the overall planning area is expected to be maintained under all Action Alternatives except alternatives 7, 8 and 10. Alternatives 7, 8, and 10 are associated with the additional risk to pool character and quality from the blasting of the bedrock immediately adjacent to the main-stem of Rough and Ready Creek..

Off Channel Habitat

· The Proposed Action could potentially degrade off channel tributary habitats adjacent to the confluence of No Name Creek and the main-stem of Rough and Ready Creek. All other Action Alternative and the No Action Alternative can be expected to maintain these specific off channel tributary habitats.

Width/Depth Ratios

None of the Action Alternatives including the Proposed Action can be expected to change overall width to depth ratios within the response reach. Some low flow micro-site-specific changes are likely to occur within the immediate vicinity of main stream channel crossings.

Stream Bank Condition

All Action Alternatives, except 9 and 11, have the potential to hinder properly functioning stream bank conditions at the proposed vehicle stream crossing sites. This potential is greatest with the Action Alternatives with the greatest number of proposed crossings (i.e., Proposed Action).

Floodplain Connectivity

· The Proposed Action may impact the No Name Fan and disrupt floodplain connectivity between Crossings 3 and 4. All other alternatives maintain the current conditions.

Changes in Peak Flows

Neither the Proposed Action nor any of its alternatives are expected to affect peak flows (see discussion in physical science report).

Road Density and Locations

Active road density is expected to increase in direct association with all of the Action Alternatives (except Alternative 9). Action Alternatives that propose to locate road segments the greatest distances from fish bearing streams is expected, to some degree, reduce the risks of degradation (based on location) associated active mineral haul roads (see the physical science report for more information about particular locations).

Human Disturbance History

Under all Action Alternatives, disturbance associated with the mining of this area is proposed to continue for 5-10 years or more.

Riparian Reserves

Under all Action Alternatives, except Alternative 9, the *Riparian Reserve* would be utilized as part of the mining transportation corridor. The Proposed Action would utilize the Riparian Reserve as a transportation corridor to the greatest extent.

Landslide and Erosion Rates

The Proposed Action and Alternatives 6,7,10 and 11 have the potential to increase the risk of landslide and erosion rates relative to Mining Site D (see Physical Science Report). In addition, road surface erosion rates are expected to be highest in the Proposed Action relative to road locations (see Physical Science Report).

Harassment or Incidental Take

All Action Alternatives, except Alternative 9, may increase the risk of harassment and/or incidental take. Action Alternatives 7, 8, and 10 are associated with some additional risk from the blasting of bedrock from the bench immediately adjacent to the main channel. However, mitigation to reduce the risk of rock-fall into the creek from bedrock blasting could be employed.

Other Indicators

Water Quality

QualitySee Physical Science Report

Hazardous Materials

Petroleum products (i.e., diesel fuel, gasoline, and hydraulic fluid) will be used in association with All Action Alternatives (see additional discussion in the Hazardous Materials Spill section of the EIS).

Determination of Effects for Proposed / Listed /Sensitive Anadromous Salmonids and/or Proposed / designated Critical Habitat in the Watershed or Downstream from the Watershed

Both the *Proposed as Listed* **Southern Oregon and California Coastal Chinook Salmon (ESU)** and the *Listed* **Southern Oregon / Northern California Coho Salmon (ESU)** are seasonally within the Rough and Ready Creek watershed and/or downstream of the watershed. The Proposed Action and Alternatives 6, 7, 8, 10, and 11 utilize roads within Riparian Reserves and degrade some or many indicators from the above Klamath/Siskiyou Mountains Province check list. Thus, these alternatives **May Affect** and **are Likely to Adversely Affect** *Listed* or *Proposed* salmonids and/or *Listed* or *Proposed* Critical Habitat. No Action and Alternative 9 would have **No Effect** on *Listed* or *Proposed* salmonids and/or *Listed* or *Proposed* Critical Habitat.

Forest Service Region Six *Sensitive* fish species also occur within the Planning area. . The Proposed Action and Alternatives 6, 7, 8, 10, and 11 utilize roads within Riparian Reserves and degrade some or many indicators from the above Klamath/Siskiyou Mountains Province check list. Therefore, all of the Action Alternatives, except Alternative 9, **May Impact** Individuals and/or Habitat, but *will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Populations* (i.e., steelhead trout and/or cutthrout trout) or species. The No Action Alternative and Alternative 9 would have **No Effect** on these *Sensitive* fish species.

Wildlife

Distribution and Effects

Hundreds of vertebrate and thousands of invertebrate species may occur within the NICORE Planning Area. The distribution and abundance of wildlife species of concern was recently described in the West Fork Illinois River Watershed Analysis (USFS 1997).

The Action Alternatives are would likely not seriously impact any known vertebrate populations. In addition, the Action Alternatives would not significantly impact the overall existing wildlife habitat conditions within the planning area. However, some of the action alternatives could result in site-specific impacts to riparian areas and rock outcrops. Impacts to riparian areas and rock outcrops could result in adverse effects to individuals or groups of wildlife (vertebrate and/or invertebrate). These impacts are not likely to be serious or affect overall habitat conditions. This judgement is based on the proposed scale of the operation relative to the total amount of habitat within the analysis area.

Cumulative Effects

Some more extensive habitat alternations and more extensive direct impacts to individuals and/or groups of individuals would likely occur from the implementation of any full-scale (500+ acres) mining alternative. The cumulative effects of such full-scale mining would impact greater numbers of groups of individuals and/or populations (vertebrate and/or invertebrate**)**. Monitoring for effects on animal populations should be conducted in all full-scale mining alternatives, and should be used to evaluate any future proposals.

Land and Resource Management Plan - Wildlife Standards and Guidelines

Management Indicator Species

Forest Management efforts consider all native vertebrate species. Several groups of species have special management needs. These groups include: (1) species dependent on specialized habitat conditions, such as cavity-nesters; (2) species requiring early, mature, or old-growth forest conditions for optimum habitat; (3) popular game species; and (4) endangered, threatened, and sensitive species.

Siskiyou National Forest Management indicator Species - Wildlife
The Forest list includes: Bald Eagle, Osprey, Spotted Owl, Pileated Woodpecker, Pine Marten, Woodpeckers, Black-tailed deer, and Roosevelt Elk.

The Proposed Action and/or Action Alternatives are not likely to seriously impact any known *Siskiyou National Forest Wildlife Management indicator Species.*

Survey and Manage Species (Wildlife)

The Survey and Manage (Wildlife) Standard and Guideline is intended to provide benefits to amphibians, mammals, mollusks, and arthropods. The Standard and Guideline contains four components, and priorities differ among them. These include: 1) Manage known sites, 2) Survey prior to ground-disturbing activities, 3) Extensive surveys, and 4) General regional surveys.

Survey prior to ground-disturbing activities

Habitat would be avoided under No Action and Alternative 9. Further surveys would be required if any other alternative is selected.

MA9 -Special Wildlife Sites

-Special Wildlife Sites One existing Special Wildlife Site occurs within the Planning area. This is a Dispersed Habitat site (DH0788) which is located (T40S, R09W, Sec.04, NE) northeast of the proposed access route to Mining Site A. It is not likely that any of the Action Alternatives will impact this Special Wildlife Site.
Based on existing information, to include the recent watershed analysis, there are no areas within the planning area presently identified as having potential as additional important Special Wildlife Sites.

O'Brien CaddisFly

The existing information on the O'Brien Caddisfly (*Rhyacophila colonus*) was recently evaluated in association with the West Fork Illinois River Watershed Analysis (USFS 1997). Available records reveal *R. Colonus* to be known from a single type locality. The Canadian F. Schmidt collected four adult males and four adult females during a visit to the Illinois Valley (the general vicinity of O'Brien, Oregon) in June of 1965. These specimens are presently located at the Institute of Entomology Research, Ministry of Agriculture in Ottawa, Canada.

Recent (1996) attempts to collect *R. Colonus* were made by the Nature Conservancy. These unsuccessful efforts used black light traps. Specific areas of Rough and Ready Creek were sampled during the above efforts. Specific habitat associations for the species have yet to be identified. However, the larvae of this genus are most commonly found in small to mid-sized streams in forested montane areas of the Pacific Northwest. The Nature Conservancy, in partnership with the Siskiyou National Forest, continues to survey for this species. Based on the lack of conclusive surveys, no effects can be predicted.

Determination of Effects for Proposed / Listed /Sensitive Wildlife Species and/or Proposed / designated Critical Habitats in the Planning Area

The Action Alternatives, including the Proposed Action, will have **No Effect** on any *Proposed* or *Listed* Wildlife Species or any *Proposed* or *Listed* Critical Habitat. The Action Alternatives **May Impact** a *Sensitive* wildlife species (i.e., O'Brien CaddisFly) or this species habitat, but *will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population* (i.e., O'Brien CaddisFly) *or Species* (i.e., O'Brien CaddisFly).

Aquatic Conservation Strategy

The conservation strategy employs several tactics to approach the goal of maintaining the "natural" disturbance regime.

Aquatic Conservation Strategy Objectives

Forest Service and BLM-administered lands within the Range of the northern spotted owl shall be managed to meet nine Aquatic Conservation Strategy Objectives.

1. The Proposed Action and all of the Alternatives may be expected to maintain the distribution, diversity, and complexity of the Rough and Ready Creek watershed and landscape-scale features.

2. Spatial and temporal connectivity would be degraded by road development and use between Crossings Three and Four in the Proposed Action and maintained in all other alternatives.

3. The physical integrity of the aquatic system as a whole is likely to be maintained, however shorelines and stream banks would be degraded at all crossing locations. Alternatives that reduce the number of stream crossings (9, 10, and 11) would best meet this objective.

4. Water quality may be degraded in all of the action alternatives except Alternative #9 (see physical science report). State water quality standards may be exceeded for short duration and distance downstream from the crossings. The Proposed Action, with its low water fords and lack of annual removal of washed rock at the crossings, would have the greatest impact on water quality. Other alternatives are associated with less impact. The project is associated with a variety of risks, including potential for slope instability at Mine Site D, additional sediment delivery from road construction and reconstruction, increased nickel concentration, hazardous substance spills at crossings. Unless there are high magnitude landslides, and/or serious toxic spills, the water quality would be expected to remain within the range that currently supports biological, physical, and chemical integrity to support aquatic and riparian species.

5.See physical science report. Site-specific changes in timing (under low flow conditions), volume, rate, and character of sediment input, storage, and transport can be expected in the vicinity of the proposed vehicle crossings. Alternatives that minimize road development, especially within riparian reserves, would have less impact, but all action alternatives except Alternative #9 would fall short of meeting this objective within the project area**.**

6. The Proposed Action and all of the Alternatives can be expected to maintain in-stream flows sufficient to create and sustain riparian and aquatic habitats. Wetland habitat at the "No Name Fan" may be degraded in the Proposed Action and Alternatives #6 and #7. Impacts to wetland habitat near Crossing #1 can likely be avoided in all alternatives. The Proposed Action, with its use of the existing Alberg road, may interfere with routing of down wood into the stream. The overall timing, magnitude, duration, and spatial distribution of peak, high, and low flows can be expected to be maintained within the project area under all of the alternatives. However, Water withdrawal may occur in all action alternatives except Alternative #9.

7. Road development within the Rough and Ready floodplain is not expected to affect the timing, variability, and duration of the floodplain inundation and water table elevation in meadows. However, some impacts to small wetlands and fens may occur from road development between Crossings #2, #3, and #4, #6, and possibly at Crossing #1**.**

8. Some plant species, within riparian areas, may be affected by road construction, reconstruction, and use as a result of all of the action alternatives except possibly Alternative #9 (see Botanical Report). Rare species at present include fen species such as darlingtonia and western bog violet, and riparian species such as Del Norte willow. Alternatives that reduce the amount of road development in riparian areas are associated with less risk. Structural diversity of plant communities, and maintenance of summer and winter thermal regulation are not likely to be directly affected by any alternative, however, indirect effects based on the introduction of POC root disease may, in the long run, reduce diversity and thermal regulation within riparian areas supporting this species. Noxious weed introduction could also indirectly impact species composition and structural diversity by out-competing native vegetation. Loss of vegetation is not likely to affect maintenance of nutrient filtering, and/or appropriate rates of surface erosion, and channel migration. Bank erosion may be accelerated by loss of vegetation at crossings (see physical science report for alternative comparison).

9. The Proposed Action and all Alternatives are expected to maintain habitat to support well-distributed populations of animal species within the project area. Little is known about the Obrien Caddisfly, a sensitive invertebrate species that may occur within the project area, thus it is futile to speculate about potential risks to this species. Potential affects on fish species are presented elsewhere in this report.

The West Fork watershed analysis does not lead to a conclusion that any other animal species may be extirpated or otherwise significantly affected by any alternative. However, some sensitive plant species across several sites may be adversely affected by the action alternatives (see botanical assessment for details).

Components of the Aquatic Conservation Strategy

Components of the Aquatic Conservation Strategy include the Riparian Reserve, Key Watersheds, Watershed Analysis, and Watershed Restoration.

Riparian Reserves - Riparian Reserves within the planning area include: fish-bearing streams, permanently flowing non-fish-bearing streams, seasonally flowing or intermittent streams, wetlands less than 1 acre, constructed ponds and/or wetlands greater than 1 acre (i.e., water diversion ditches, etc.).

Key Watersheds - Neither Rough and Ready Creek nor the West Fork of the Illinois River was identified as a Key Watershed in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. Forest Service (1994).

Watershed Analysis - Rough and Ready Creek was included in the recent West Fork of the Illinois River Watershed Analysis (1997).

Watershed Restoration - In that Rough and Ready Creek is not presently identified as either a Key Watershed (USFS/BLM) or Coastal Salmon Recovery Initiative Core Area (ODFW). To date, watershed restoration within the Rough and Ready Creek watershed has not been an integral part of the overall USFS management/ planning. However, watershed restoration opportunities were identified for this watershed in the recent (1997) West Fork of The Illinois River Watershed Analysis**.**

Riparian Reserve Standard and Guidelines

As a general rule Riparian Reserve Standards and Guidelines prohibit or regulate activities in the Riparian Reserves that retard or prevent attainment of the Aquatic Conservation Strategy Objectives.

Roads Management

RF-1. Federal, state and county agencies are working in cooperation to achieve consistency in road design, operation, and maintenance necessary to attain the Aquatic Conservation Strategy Objectives.

RF-2. **a**. Many of the proposed action alternatives for the Nicore project require significant road development within riparian reserves (See Table 1). Alternative 9 is designed to eliminate road development in the Riparian Reserves.

b. Project level analysis would be completed, including geo-technical analysis, on the final selected alternative. West Fork Illinois River Watershed Analysis, including Rough and Ready Creek, provides context for the project level analysis.

c. Road design criteria, elements, and standards governing the construction and reconstruction of roads within the Riparian Reserve are being prepared in association with this analysis (see road access document).

d. Preparation of criteria for the operation and maintenance of roads within the Riparian Reserve are also being done in association with this analysis (see road access document).

e. Roads designed for this project would be constructed using Best Management Practices and other criteria to minimize disruption of natural hydrologic flow paths. Some diversion of stream flow could occur at the crossings, especially under the Proposed Action. Surface and subsurface flow may be interrupted in some Riparian Reserves.

f. All roads would be designed to minimize sediment delivery into streams. (see physical science report for a comparison of alternatives).

g. None of the action alternatives avoid wetlands entirely except 9 and 11

RF-3. The West Fork Watershed Analysis identified some roads that retard achievement of Aquatic Conservation Strategy Objectives. The Alberg Road currently is an active source of sediment.

a. All action alternatives, except the Proposed Action, would abandon the current location of the Alberg road. Road construction and reconstruction would be designed to achieve ACS road construction/maintenance objectives.

b, c. The West Fork Watershed Analysis recommended and prioritized restoration activities, including road projects, within the watershed. The Alberg road would be closed and stabilized under Alternatives #6-#11. Annual storm-proofing would be required in all action alternatives prior to the wet season. Roads would be closed to the public in all action alternatives (roads would remain open in the Proposed Action). Long-term transportation needs relative to minerals operation would be considered following completion of the mining project.

RF-4. All crossings would be designed to maintain to prevent diversion of stream flow out of the channel and down roads in the event of a crossing failure.

RF-5. Road design criteria in all the action alternatives would out-slope or use drainage features to minimize risk of sediment delivery. However, use of the Alberg route would likely increase the risk of sediment delivery well above other action alternatives.

RF-6. The Proposed Action may retard the maintenance of fish passage during low flow conditions. All of the other action alternatives would be expected to provide and maintain fish passage at all road crossings of existing or potential fish-bearing streams. The use of bridges may indeed be the most effective way to provide and/or maintain fish passage, during low flow conditions.

RF-7. For the final selected alternative, a project road management plan (including Road Management Objectives) will be developed to meet the Aquatic Conservation Strategy objectives. Inspection and maintenance during (or immediately following) storm events may only be possible during the summer operating season; access across Rough and Ready Creek would not likely be possible during winter storm events. All action alternatives would approve only dry season operation and road use.

Minerals Management

MM-1. No mining within Riparian Reserves is proposed, however, a reclamation plan and bond will be required for the final, approved Plan of Operations. See the EIS for a discussion about the reclamation objectives.

MM-2. All the action alternatives, except 9, include road development within Riparian Reserves. The impact of these roads on the Aquatic Conservation Strategy objectives is described elsewhere in this report. The Proposed Action would locate a stockpile site that is partially within the mainstem Rough and Ready Creek Riparian Reserve. The other action alternatives would site this facility outside the Riparian Reserve. Road development within Riparian Reserves is minimized in all action alternatives (see Table 1 - the Proposed Action would develop substantially more roads within the reserves than the other action alternatives). The action alternatives would construct and maintain roads to meet roads management standards and minimize resource damage. The Proposed Action would clearly not meet this standard, because it includes a crossing that is not necessary (Crossing #4) and does not include specific design criteria to minimize resource damage. The Road Access Documentation Memo (Oleary 1997) describes criteria included for all action alternatives. Roads will be storm-proofed annually under all action alternatives. When the mining operation is complete, the roads may be decommissioned, depending on whether they are required for future mining. At the minimum, the roads will be storm-proofed. The roads would be closed to the public during mining operations in all action alternatives (the Proposed Action does not include provisions for road closures). All action alternatives (except the Proposed Action) would eliminate the Alberg Route. Under these alternatives, the FS would consider decommissioning and/or obliterating this road within its regular road management program. At the minimum, the road would be stabilized.

MM-3. None of the Action Alternative, including the Proposed Action, pose solid or sanitary waste facilities in the Riparian Reserves.

MM-4. Neither the Proposed Action nor any of the Action Alternatives submit leasable minerals.

MM-5. None of the Action Alternative, including the Proposed Action, intend salable mineral activities.

MM-6. All of the Action Alternatives, including the Proposed Action, will embody inspection and monitoring requirements designed to effect the modification of the Plan of Operation as needed to eliminate impacts that retard or prevent attainment of the Aquatic Conservation Strategy objectives. See Chapter Two within the EIS for a monitoring plan for the action alternatives.

Working References

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RVCOG. 1997. Southwest Oregon Salmon Restoration Initiative: A Planning Effort in Support of the Coastal Salmon Recovery Initiative: Phase 1: A Plan to Stabilize the Native Coho Population From Further Decline. Rogue Valley Council of Governments. February, 1997.

USFS. 1997. West Fork Illinois River Watershed Analysis Results Iteration 1.0. Illinois Valley Ranger District, Siskiyou National Forest. June 1997.

USFS/BLM. 1994 Record of Decision for Amendments to Forest Service an Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. Forest Service and Bureau of Land Management. April 1994.

USFS. 1989. Land and Resource Management Plan Siskiyou National Forest. United States Department of Agriculture, Siskiyou National Forest.

Addendum

ALTERNATIVE 9 - PREFERRED - Limited Road Access, Helicopter Sampling

Alternative 9 would allow sampling of mine sites A, B, C, and/or D. This alternative would require Nicore to sample 5,000 tons of ore from the mine sites. Sampled ore would be hauled in helicopter buckets (about 670 round trips is estimated for a flight time of 120 hours is estimated for the removal of 5,000 tons of ore). No significant road improvement would be approved. The miner could walk tracked vehicles (such as a backhoe) to Mine Site B up Road 251 ("the Rock Creek Road), however equipment would have to be flown to the other mine sites. The Rock Creek road would not be approved for daily travel with personnel vehicles. NO STREAM CROSSINGS FOR ANY VEHICLE WOULD BE APPROVED.

Sampling would be limited to approved sites where surveys have determined that PETS and Survey and Manage Species can be avoided. All of the mine sites have been previously sampled, and this alternative would limit disturbance to previously sampled areas. The mine pits themselves would disturb less than one acre (approximately 0.2 acres per mine site).

Alternative 9 would require the miner to sample and process some ore to resolve the economic and operational uncertainties associated with the project,1 without incurring the environmental degradation associated with road development and use. Nicore would be given five years to stockpile and process the ore. Five years is expected to provide adequate time to resolve plan uncertainties. Once the miner completed the sampling, he could submit a new Plan of Operations, with additional economic and operational analysis based on the findings of the sample processing. That plan would be subject to appropriate environmental analysis.

The alternative stockpile site would be used. The stockpile and mine sites would be designed for helicopter maneuver (bucket loading/unloading). The powerline road between 199 and the stockpile site would be improved.